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SCIENTIFIC VALUE OF CYCLOPLEGICS IN REFRACTION

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The subject of using cycloplegics in refraction has been a point of discussion from time to time by refractionists of various schools. There have been some arguments advanced favoring the use of cycloplegics as well as against their use. The writer has searched the opthalmic literature for a complete discussion upon this subject, and found that some of the accepted authorities pass up the subject by merely stating that a cycloplegic should be used in all cases, with the exception of people over 40 years of age. Others make no mention of it at all. Dr. De Schweinitz has this to say on the subject ("Diseases of the Eye," De Schweinitz, p. 135): "In addition to the medicinal value of midriatics in the treatment of diseases of the eye, e. g., iritis, these drugs are employed as aids of an accurate determination of ametropia. With the ophthalmometer, with the aid of midriatic, and with the methods of retinoscopy in the absence of prolonged mydriasis, good results are obtained; but it is a safe rule in all cases of suitable age, and in the absence of contra indicating symptoms, to employ a mydriatic before attempting to select correcting lenses. This remark applies particularly to cases of astigmatic errors. The mydriatic accomplishes three purposes:

"(a) It dialates the pupil, and permits a thorough exploration of the interior of the eye.

"(b) It paralyzes the actions of the ciliary muscle and places the accomodation in abeyance, rendering manifest types of ametropia which otherwise would remain latent.

"(c) It fulfills the important function of giving, during the time of its action, physiological rest to the eye that is under its influence, and consequently helps to subdue any retinochoroidal disturbance or other congestive condition that pre-existing eyestrain may have originated."

Ball ("Modern Ophthalmology," p. 132) claims that, "Mydriatics are used for four purposes: (1) To dialate the pupil and thus permit the examination with the ophthalmoscope; (2) To paralyze the accommodation and thus permit the observer to measure the refraction by some methods which can be employed only when the ciliary muscle is made inactive; (3) To determine the diagnosis of 'eye-strain'; and (4) they are employed as therapeutic agents in inflammation particularly those of the uveal tract."

Drs. Hansell and Sweet ("Diseases of the Eye," p. 84) have this to say on the subject: "Optical Treatment: (1) Latent—Under cycloplegia the absolute hyperopia is determined and proved by the usual tests. The final estimation is by the method of the test lenses and test cards. The lens that gives full visual acuity is the measure of the total hyperopia. The patient is asked to read the smallest letters on the test card that he can decipher at six meters distance from one eye, the other being excluded from the act of vision. A convex glass, determined approximately (or exactly) by other tests, is placed in the frame and the effect on vision noted. This glass is modified if necessary until no further improvement in vision can be made. Astigmatism, an important factor in the majority of cases of hyperopia, will prevent full sharpness of sight through spherical lenses. It must be corrected or excluded in every case. In general full correction is ordered (a) only when the hyperopia is low and the glass is desired for close work. Exceptionally it should be recommended for constant wear, particularly in inflammation or congestion of the uveal tract. (b) When the symptoms are severe and full test of the accommodation is essential for comfort.

"Latent and Manifest: The accommodation must be paralyzed, and the adaption and ordering of glasses car-

ried on as described above. As a rule glasses for constant wear will be needed, or one pair for distance (less than full correction) and one for near (full correction) are needed.

"Absolute: No cycloplegia is required. The full correction should always be ordered for distant wear, with the addition of the presbyopic glass for near.

"It is customary in the majority of cases in which the refraction is estimated under cycloplegia to postpone the ordering of the glasses until accommodation has returned. The full correction can then be modified for the purposes for which the glasses are needed. In low defects postponement is unnecessary, and the glass can be ordered as soon as determined. The objection to a full correction of high hyperopia by patients is a real and practical one. They decline to wear glasses that obscure the vision, and thus the therapeutic value of glasses is lost."

Lionel Laurence ("Visual Optics," p. 255) states that: "The necessity for cycloplegics in some cases of Ametropia, especially in children, is unquestioned, but the use of drugs for the purpose of sight testing is rapidly becoming less as knowledge of the work increases. Also the advantages not correcting ametropia as found in the artificially passive eye, are becoming more recognized, although, of course, it does not follow that for instance, a full correction of hyperopia is given because the error has been measured under cycloplegia."

The writer has undertaken to determine the scientific value of the use of cycloplegics in refraction. This experiment was carried on during the world war but the results have not been published until this late date.

The experiment consisted in making a retinoscopic and subjective examination under a static condition which was considered as the manifest refraction and a retinoscopic and subjective (trial lens) examination while the eyes were under a cycloplegic.

Material Used

This examination was made on men only, the age ranging from eighteen years and over. It was a strong healthy group of soldiers who presented themselves for refraction at the

TABLE 1

Cases where the manifest restinoscopy was found to be the same as the cycloplegic restinoscopy.

+ 25	spherical	to	+1.00	spherical	.....	24	eyes
+1.25	"	"	+2.00	"	.....	2	"
+2.25	"	"	+4.00	"	.....	3	"
+4.00	"	"	+6.00	"	.....	3	"
	Total				.....	32	"

TABLE 2

Cases where the cycloplegic retinoscopy was greater than manifest retinoscopy.

Cycloplegic	retinoscopy		+25		spherical	greater	.....	8 eyes
"	"		+50		"	"	.....	8 "
"	"	+ 75	to	+1.00	"	"	.....	8 "
"	"	+1.25	to	+2.00	"	"	.....	4 "
"	"	+2.25	to	+4.00	"	"	.....	3 "
"	"	+4.25	to	+6.00	"	"	.....	1 "
	Total						.....	32 "

TABLE 3

Cases where manifest retinoscopy was greater than cycloplegic retinoscopy.

Manifest	retinoscopy		+25		spherical	greater	.....	12 eyes
"	"		+50		"	"	.....	3 "
"	"	+ 75	to	+1.00	"	"	.....	1 "
"	"	+1.25	to	+2.00	"	"	.....	0 "
"	"	+2.25	to	+4.00	"	"	.....	0 "
"	"	+4.25	to	+6.00	"	"	.....	0 "
	Total						.....	16 "

hospital. There were 65 persons refracted under this experiment. The cycloplegic used was a mixture of homoatrophine and cocaine. A thorough check was made in each case to make certain that there was complete paralysis of accommodation.

Results

Of the 130 single eyes refracted the results given in the following tables were found. (See Tables 1, 2 and 3.)

TABLE 4

Cases where the astigmatic findings were the same under cycloplegic and manifest retinoscopy.

+ 25 to +1.00	cylinder same in cycloplegic manifest retinoscopy	23 eyes
+1.25 to +2.00	" " " " "	0 "
+2.25 to +4.00	" " " " "	1 "
+4.25 to +6.00	" " " " "	0 "
Total		24 "

TABLE 5

Cases where astigmatic findings were greater under cycloplegic retinoscopy then manifest.

+ 25	cylinder greater than in static	10 eyes
+ 50	" " " "	3 "
+ 75 to +1.00	" " " "	4 "
+1.25 to +2.00	" " " "	0 "
+2.25 to +4.00	" " " "	0 "
+4.25 to +6.00	" " " "	0 "
Total		17 "

TABLE 6

Cases where astigmatic findings were greater under manifest retinoscopy than cycloplegic.

+ 25	cylinder greater than under cycloplegic	5 eyes
+ 50	" " " " "	5 "
+ 75 to +1.00	" " " " "	6 "
+1.25 to +2.00	" " " " "	1 "
+2.25 to +4.00	" " " " "	0 "
+4.25 to +6.00	" " " " "	0 "
Total		17 "

TABLE 7

Cases where subjective findings under cycloplegic are the same as manifest subjectives.

+ 25 to +1.00	spherical cycloplegic subjective same as manifest subjective	34 eyes
+1.25 to +2.00	" " " " " "	2 "
+2.25 to +4.00	" " " " " "	2 "
+4.25 to +6.00	" " " " " "	1 "
Total		39 "

TABLE 8

Cases where cycloplegic findings are greater than manifest subjective findings.

Cycloplegic subjective	+25	spherical greater than manifest subjective	17	eyes
" "	+50	" " " " "	8	"
" "	+ 75 to +1.00	" " " " "	7	"
" "	+1.25 to +2.00	" " " " "	2	"
" "	+2.25 to +4.00	" " " " "	6	"
" "	+4.25 to +6.00	" " " " "	0	"
Total			40	"

TABLE 9

Cases where manifest subjective findings are greater than cycloplegic subjective findings.

Manifest subjective	+25	spherical greater than cycloplegic subjective	7	eyes
" "	+50	" " " " "	0	"
" "	+ 75 to +1.00	" " " " "	0	"
" "	+1.25 to +2.00	" " " " "	0	"
" "	+2.25 to +4.00	" " " " "	0	"
" "	+4.25 to +6.00	" " " " "	0	"
Total			7	"

As study of tables 1 and 2 will show that the number of eyes where the cycloplegic retinoscopic findings were the same as in the manifest, is exactly equal to the number where there was some difference between the manifest and cycloplegic retinoscopic findings. If we should transfer the first group of table 2 where the difference in the findings of eight eyes is only a +25 sph. which ordinarily we would be justified in considering these under table 1 where the findings in each case are equal we would then have 40 eyes where the spherical findings under manifest and cycloplegic retinoscopy are the **same** as against 24 eyes where the cycloplegic findings were greater than the manifest.

A study of tables 2 and 3 will show that there were just half as many cases where the manifest retinoscopic findings were greater than the cycloplegic findings, when compared with those of table 2 where the cycloplegic findings were greater than the manifest.

A study of table 4 will reveal that the number of eyes where the cycloplegic astigmatic findings were the same as in the manifest is about one and one-half as great as No. 5 where the cycloplegic astigmatic findings are greater than the static findings.

A study of tables 5 and 6 will reveal that there were just as many cases where the manifest astigmatic findings were greater than the cycloplebic than where the number of cycloplebic findings were greater than the manifest.

A study of tables 7 and 8 will show that the number of cases where the cycloplegic subjective findings are the same as the manifest subjective is nearly equal to numbers of cases where the findings differed. If we should transfer the first group of table 8 where the difference of 17 cases is only +25 sph. which ordinarily we would be justified in considering these under table 7 where the findings in each case are the same, because the patient's judgment, it has been found by the writer, is not reliable on that small amount. We would then have 56 cases where the findings are the same under either test as against 23 cases where there was some **difference** in the findings.

An analysis of tables 10 and 11 will reveal that there were nearly four times as many cases where the findings were the **same** under manifest and cycloplegic subjective test as compared with the cases under table 11 where there was some difference in the findings under the two tests. The same is

TABLE 10

Cases where astigmatic findings were the same under cycloplegic and manifest subjective tests.

+ 25 to +1.00	cylinder	cycloplegic	subjective	and	manifest	findings	are same	37 eyes
+1.25 to +2.00	"	"	"		"	"	"	1 "
+2.25 to +4.00	"	"	"		"	"	"	0 "
+4.25 to +6.00	"	"	"		"	"	"	0 "
Total								38 "

TABLE 11

Cases where the astigmatic cycloplegic subjective findings were greater than the manifest subjective findings.

Cycloplegic subjective		+25	cylinder	greater	than	manifest	subjective	5 eyes
"	"	+50	"	"	"	"	"	3 "
"	"	+ 75 to +1.00	"	"	"	"	"	2 "
"	"	+1.25 to +2.00	"	"	"	"	"	0 "
"	"	+2.25 to +4.00	"	"	"	"	"	0 "
"	"	+4.25 to +6.00	"	"	"	"	"	0 "
Total								10 "

TABLE 12

Cases where manifest subjective astigmatic findings are greater than cycloplegic subjective.

Manifest subjective		+25	cylinder	greater	than	cycloplegic	subjective	9 eyes
"	"	+50	"	"	"	"	"	1 "
"	"	+ 75 to +1.00	"	"	"	"	"	2 "
"	"	+1.25 to +2.00	"	"	"	"	"	0 "
"	"	+2.25 to +4.00	"	"	"	"	"	0 "
"	"	+4.25 to +6.00	"	"	"	"	"	0 "
Total								12 "

nearly true when a comparison is made between the cases of table 10 and table 12.

A study of tables 13 and 15 will reveal that the restinoscopic and subjective manifest findings are the same, in a greater number of cases than the retinoscopic and subjective findings under the cycloplegic. Also tables 14 and 16 show that there are just as many cases where the retinoscopic and subjective spherical findings vary under a cycloplegic examination as those under a manifest examination.

Tables 17 and 18 show that the number of cases where cylindrical findings are the same under cycloplegic retinoscopy and cycloplegic subjective is larger than the number of cases where the findings under the two tests differ. The same condition is also revealed from a study of tables 19 and 20, also by comparing the results of tables 20 and 18 it is found that the number of cases where there is a difference between the retinoscopic and subjective findings is greater under the cycloplegic examination.

The value of the use of cycloplegia in refraction work can further be shown by a study of some cases from the writer's own practice which were refracted under a cycloplegic and without the use of a cycloplegic and the results obtained will help prove the writer's contention that **a cycloplegic is not at all necessary and in many cases not desirable.**

TABLE 13

Cases where the retinoscopic and subjective findings are the same under cycloplegic.

+ 25 to +1.00	spherical	cycloplegic	retinoscopy	same as	cycloplegic	subjective	19	eyes
+1.25 to +2.00	"	"	"	"	"	"	2	"
+2.25 to +4.00	"	"	"	"	"	"	3	"
+4.25 to +6.00	"	"	"	"	"	"	0	"
Total							24	"

TABLE 14

Cases where cyloplegic retinoscopic findings are greater than the subjective.

Cycloplegic	restinoscopy	+25 +50	spherical	greater	cycloplegic	subjective	17	eyes
"	"		"	"	"	"	16	"
"	"	+ 75 to +1.00	"	"	"	"	10	"
"	"	+1.25 to +2.00	"	"	"	"	3	"
"	"	+2.25 to +4.00	"	"	"	"	1	"
"	"	+4.25 to +6.00	"	"	"	"	0	"
Total							47	"

TABLE 15

Cases where the findings of the manifest retinoscopy are the same as the manifest subjective.

+ 25 to +1.00	spherical	manifest	retinoscopy	same as	manifest	subjective	28	eyes
+1.25 to +2.00	"	"	"	"	"	"	2	"
+2.25 to +4.00	"	"	"	"	"	"	0	"
+4.25 to +6.00	"	"	"	"	"	"	0	"
Total							30	"

TABLE 16

Cases where the manifest retinoscopic findings are greater than the manifest subjective findings.

Manifest	retinoscopy	+25 +50	spherical	greater	than	static	subjective	16	eyes
"	"		"	"	"	"	"	11	"
"	"	+ 75 to +1.00	"	"	"	"	"	7	"
"	"	+1.25 to +2.00	"	"	"	"	"	10	"
"	"	+2.25 to +4.00	"	"	"	"	"	2	"
"	"	+4.25 to +6.00	"	"	"	"	"	0	"
Total								46	"

TABLE 17

Cases where the astigmatic retinoscopic and subjective findings are the same under a cycloplegic examination.

Cycloplegic retinoscopy		+.25	cylinder	same as	cycloplegic	subjective	5	eyes
"	"	+.50	"	"	"	"	13	"
"	"	+ .75 to +1.00	"	"	"	"	3	"
"	"	+1.25 to +2.00	"	"	"	"	2	"
"	"	+2.25 to +4.00	"	"	"	"	2	"
"	"	+4.25 to +6.00	"	"	"	"	0	"
Total							25	"

TABLE 18

Cases where astigmatic cycloplegic retinoscopic findings are greater than cycloplegic subjective findings.

Cycloplegic retinoscopy		+.25	cylinder	greater	cycloplegic	subjective	12	eyes
"	"	+.50	"	"	"	"	6	"
"	"	+ .75 to +1.00	"	"	"	"	4	"
"	"	+1.25 to +2.00	"	"	"	"	0	"
"	"	+2.25 to +4.00	"	"	"	"	0	"
"	"	+4.25 to +6.00	"	"	"	"	0	"
Total							22	"

TABLE 19

Cases where the astigmatic retinoscopic and subjective findings are the same under a manifest examination.

Manifest restinoscopy		+.25	cylinder	same	as	manifest	subjective	8 eyes
"	"	+.50	"	"	"	"	11	"
"	"	+ .75 to +1.00	"	"	"	"	2	"
"	"	+1.25 to +2.00	"	"	"	"	0	"
"	"	+2.25 to +4.00	"	"	"	"	0	"
"	"	+4.25 to +6.00	"	"	"	"	0	"
Total							21	"

TABLE 20

Cases where astigmatic retinoscopic findings are greater than subjective findings under a manifest examination.

Manifest restinoscopy		+.25	cylinder	greater	than	manifest	subjective	11 eyes
"	"	+.50	"	"	"	"	"	3 "
"	"	+ .75 to +1.00	"	"	"	"	"	2 "
"	"	+1.25 to +2.00	"	"	"	"	"	0 "
"	"	+2.25 to +4.00	"	"	"	"	"	0 "
"	"	+4.25 to +6.00	"	"	"	"	"	0 "
Total								16 "

Illustrative Cases

Case 1. Patient female, age 31, office clerk by occupation, presented herself for refraction on November 6, 1923, complained of frontal pains, photophobia, lachrimation, diplopoia. Also claimed to get blind spells lasting for two and three days a week.

Patient was refracted five times during the last three years by different refractionists, a cycloplegic having been used each time. The last refraction was made a few months ago by a reputable optholmologist, a personal friend of the writer. It was the writer's privilege to refract many cases along with this ophtholmologist in the eye department of one of the Base Hospitals during the war, and the writer has found him to be a thorough and painstaking refractionist. The patient was wearing, at the time she called for a refraction, O.D. +1.00 D. cyl. axis 180; O.S. + 4.00 D. cyl. axis 135. Visual acuity without lenses was O.D. 10/200; O.S. 20/200. Retinoscopic findings were O.D. —13.00 D. sph. O.S. —6.00. D. sph. () —4.00 D. cyl. axis 165. Visual acuity with these findings was O.D. 20/30, O.S. 20/25—. The following lenses were prescribed: O.D. —9.00 D. sph.; O.S. —7.50 D.

sph () +3.50 D. cyl. axis 75. After wearing this prescription for a while the patient reported that all symptoms complained of before disappeared and that she was feeling fine. The patient was under observation for four months time and the same satisfactory report was given each time the patient called for re-examination.

Case 2. Patient male, age 14, high school student, called October 22, 1923. Patient is a picture of health in every respect, seems to be unusually strong and well developed for his age. He is five feet three inches tall and weighs 150 pounds. His complaint was that after using his eyes for a few minutes he became very nervous and developed ocular pains. He was refracted six months ago under a cycloplegic and was prescribed O.D. —0.75 D. cyl. axis 90; O.S. —1.00 D. cyl. axis 90.

Patient's vision without lenses was O.D. 20/30; O.S. 20/40; A-1.00 cyl. at .90 O.U. gave 20/20 vision. The finding of the ophthalmoscope, of the external ocular examinations and of static retinoscopy were all negative. Ophthalmometer findings, O.D. 0.75 axis 90; O.S 0.25 axis 90.

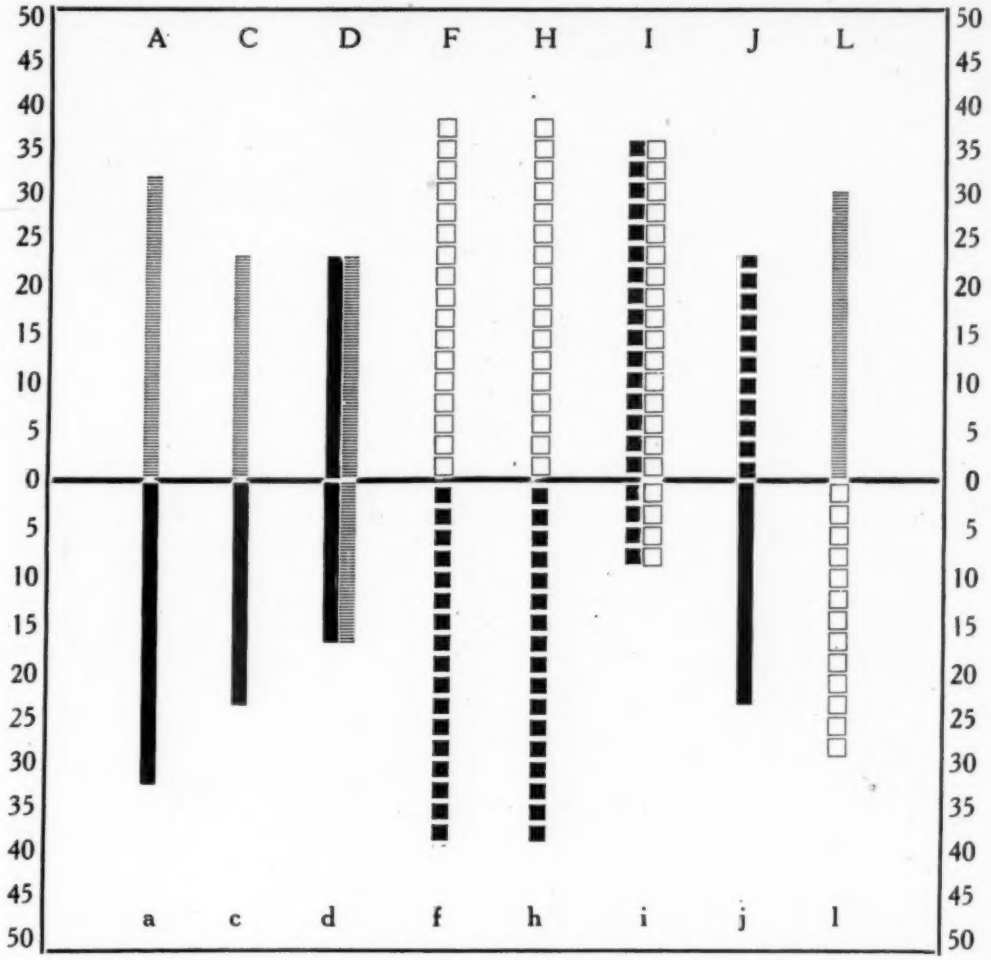
Tonicity test showed no vertical imbalance either at distance or at near, but an esophoria of 12° at a distance and 13° at near. Dynamic skiametry developed O.U. +1.50 D. sph. () +1.50 D. cyl. axis 180. The patient was given O.U. +0.75 D. sph. with instruction that glasses be worn constantly for three weeks and return for a re-examination at that time. A re-examination revealed that the visual acuity with the naked eyes has improved and there was also a decrease in the amount of esophoria. The case was continued under observation and suppression lenses given each time when so indicated by the examination. To date the patient is still wearing a plus correction and is perfectly comfortable, all annoying symptoms having disappeared upon removal of minus correction given under the use of a cycloplegic.

Case 3. Patient male, age 18, on October 5, 1919, came to me complaining of an inability to use eyes for close work. Upon examination under a manifest static and dynamic retinoscopy the patient was prescribed +1.50 D. sph. for constant use. The patient reported within four weeks that he could use his eyes for any length of time with complete comfort. About a year later the patient called at the office and complained of the same trouble he had last year, and he stated that a couple of months ago he lost his glasses while in another city. He had his eyes refracted there under a mydriatic but did not feel comfortable with the last pair of glasses, upon neutralizing his lenses it was found that he was wearing +75 D. sph. O.U. The patient was refracted and there was no material change in the findings since the examination of October, 1919. The patient was again given +1.50 D. sph., O.U. which gave him comfort. Here again is seen a case where under a cycloplegic examination has been prescribed just one-half of the amount of plus spherical correction compared with the prescription given under an examination without the use of cycloplegics.

Use of Cycloplegic Explained From a Psyclogic Standpoint

Why are some refractionists at an absolute loss when refracting without the use of a cycloplegic? This condition is due to two facts: (1) The lack of training in making a thorough refraction by any other method. (2) Using a cycloplegic in refraction for any length of time one becomes adapted to this method and misses the cycloplegic findings when one has to refract and use the manifest findings.

The same is equally true when any refractionist has to omit any one of the tests he has been used to perform while making a complete refraction. There are some refractionists who



GRAPHIC SCHEME

Cycloplegic Retinoscopy

Manifest Retinoscopy

Cycloplegic Subjective

Manifest Subjective

LEGEND

A-a	Represents	Table	I	
C-c	"	"	"	4
D-d	"	"	"	4-5-6½
F-f	"	"	"	7
H-h	"	"	"	10
I-i	"	"	"	10-11
J-j	"	"	"	13
L-l	"	"	"	15

The letters used in this graph correspond to the letters used to designate the different paragraphs in the summary.

claim that they would dispense with any instrument while refracting but the retinoscope, or ophthalmoscope, or ophthalmometer and the use of any one of these instruments is just of as much importance to these refractionists from the standpoint of obtaining information as is the use of cycloplegics to others. That, the law of adaptation is an important factor in the continued use of cycloplegic, can be testified by the writer not merely from the observation and experience of other refractionists, but from his own personal experience as well. At one time the writer was so situated that he made a general use of cycloplegic in his refraction. Later on he became so adapted to the use of cycloplegics that he felt that the refraction was not complete without the cycloplegic findings. This is true not only in the writer's personal experience but with other refractionists as well. Some time ago the writer had an opportunity to come in close contact with many refractionists who were constant users of cycloplegics and he found that these refractionists were helpless when they tried to refract without using a cycloplegic. Most of them could not make a thorough and reliable manifest refraction. In most cases the manifest refraction consisted of merely taking the visual acuity before using the cycloplegic. The writer agrees with Dr. E. M. Alger, who states that he was "sorry to see the growing dependence on cycloplegics; not that they were not often necessary, for they were, but in many cases the patient's actual needs could be better served without them. They often obscured vital elements in the problem and sometimes seemed to paralyze the initiative of the physician even more than they did the accommodation of the patient. They should be omitted or used according to the needs of the individual case."

Summary

a. In 32 cases the manifest retinoscopic spherical findings were exactly the same as the cycloplegic retinoscopic findings.

b. The number of cases where the cycloplegic and manifest retinoscopic findings were the same is equal to the number of cases where there was some difference in the findings under the two tests.

c. In 24 cases the manifest retinoscopic cylindrical findings were the same as the cycloplegic retinoscopic findings.

d. The number of cases where there was no difference in cycloplegic and manifest cylindrical findings is about one and one-half times greater than the number of cases where there was a difference in the findings under the two tests.

e. The number of cases where the manifest retinoscopic astigmatic findings were greater than the cycloplegic is exactly equal to the number of cases where the cycloplegic findings were greater than the manifest.

f. In 39 cases the cycloplegic subjective spherical findings were exactly the same as in the manifest subjective findings.

g. The number of cases where the cycloplegic and manifest subjective spherical findings were the same is equal to the number of cases where there was some difference in the findings under the two tests.

h. In 38 cases the cycloplegic and manifest subjective cylindrical findings were the same.

i. The number of cases where the cycloplegic and manifest subjective findings were the same is about four times greater than the number where there was some difference in the findings under the two tests.

j. There were 24 cases where the cycloplegic retinoscopic findings were the same as the cycloplegic subjective.

k. There were 47 cases where the cycloplegic retinoscopic findings differed from the cycloplegic subjective findings or twice as many cases where the findings under the two tests differ as compared with the number where the findings agree under the two tests.

l. In 30 cases the manifest retinoscopic and subjective findings were the same.

m. In 46 cases the manifest retinoscopic findings differed from the subjective or there were just one and one-half times as many cases where the findings under the two tests differ as compared with the number where the findings agreed under the two tests.

n. In 22 cases the cycloplegic retinoscopic cylindrical findings differ from the cycloplegic subjective findings.

o. In 16 cases the manifest retinoscopic cylindrical findings differ from the subjective findings, or the number of cases where there is a difference between the retinoscopic and subjective findings is less under the manifest than the cycloplegic findings.

Conclusion

In carrying on this experiment and drawing the conclusions the writer has not been influenced by any theorethical considerations advanced on this subject. The conclusions were drawn from the facts and figures as found from actual experience in conducting the examinations under the two different methods of refraction—the cycloplegic and manifest.

A close study of the figures presented in tables 1 to 20 inclusive and the anology as presented in the summary of the preceding pages will lead any unbiased observer to the following conclusions:

1. That there is more disagreement between the retinoscopic and subjective findings under a cycloplegic refraction than there are found in the same kind of tests used in a manifest refraction.

2. That the findings of a cycloplegic refraction are no more accurate than those of a manifest refraction.

3. That in most cases more accurate findings are obtained in a manifest refraction than in a cycloplegic refraction.

References

1. Dr. Schwinitz, **Diseases of the Eye.**

2. Ball, **Modern Ophthalmology.**

3. Ladd and Woodworth, **Elements of Physiological Psychology.**

4. Lickley, **The Nervous System.**

5. Hansel and Sweet, **Diseases of the Eye.**

6. Lionel Laurance, **Visual Optics.**

NOTES, CASES AND INSTRUMENTS

A CARD FOR REPRESSION LENS CASES

Carel C. Koch, Opt. D., F. A. A. O.
Minneapolis, Minn.

The use of repression lenses, or suppression lenses as they are sometimes called is now a frequent occurance in the practice of Optometry, and the writer believes the card reproduced below (Figure 1), will be of interest to the optometrists of the Northwest, for use when cases demanding this form of treatment occur.

This card was originally devised by Dr. Walter A. Zeitler, Optometrist and Physician of St. Louis and was later used by Dr. Ernest Fielding, now of Kansas City.

The cards are used as follows, after a thorough explanation of the case to the patient, a card is filled out and given to the patient. Not only will it allay his or her objections as to the blur which is present, but it will also explain to questioning friends and relatives the exact status of the case at this point.

The aforementioned optometrists find the use of these cards quite satisfactory and the members of the profession in the Northwest may find the suggestion of some value.

PATIENT..... DATE.....

My examination reveals the fact that your eyes are not only defective but they have been used to excess. This has produced what might be described as a swelling of the crystalline lens, which renders it an impossibility to measure your error accurately at this time. The glasses which I am now giving you are treatment glasses, and are intended to reduce this swelling. You are to wear them with the same constancy that you would a bandage on a fractured limb—except that you can remove them when you sleep. With these glasses your distance vision will be blurred, but it is my intention for it to be so, as it is in this way that your eyes may be induced to relax and, the swelling of the lens be permitted to subside. You are to do no near work during such time as your eyes are undergoing treatment, but instead, you are to seek out-of-door exercise, and general bodily rest. If you follow directions faithfully, you may return in.....days, and I will endeavor to complete the examination. If this seems a hardship to you, please remember that competent specialists have very frequently found it necessary to treat such conditions as that from which you are suffering, for periods of many months, and it is possible for your eyes to develop a condition requiring such treatment if you fail to follow instructions conscientiously.

.....Opt. D.

Figure 1

ABSTRACT DEPARTMENT

Drakeford, J. H. Time Savers. Optical Age. Vol. 20, No. 11, pp. 35, 1924.

Drakeford describes a tonicity test that can quickly be made, both at the near point and at a distance without a phorometer. The technic of this test is after finding the distance correction and then the reading correction, a red disc is placed before the left eye and a 5 degree prism base down before the right eye. The transilluminator is held at reading distance before the patient, exactly in the median line and the patient is required to state the position of the red light in relation to the white light. The necessary prism to place the red exactly under the white is the measure of insufficiency for near.

The reading addition (if any) is then removed from the trial frame and the patient is directed to look at the distance chart and select the 200-foot letter and say what the relation of the red to the white is. This is lined up with the necessary prisms, if needed, and this represents the distance inefficiency. The use of a 10 or 12 degree prism base out in both near and far tests will indicate any hyperphoric deficiency. C. C. K.

Lloyd, R. I., Measuring the Deviation of a Strabismic Eye on the Stereoscopic Campimeter. American Journal of Opthalmology. (Ill.) Series 3, Vol. 6, No. 10, pp. 839-841, 1923.

Lloyd, in a paper on the measuring of the deviation of a squinting eye recommends the use of the Stereo-Campimeter for the accurate measuring of the deviation.

The technic recommended is as follows, and it is to be preferred to the perimeter method. The patient fixes in the apparatus with the good eye, the poorer eye deviates; both blind spots are then mapped out using a half degree, white test object. The good eye is then covered and the poor eye fixes, and the blind spot of this eye is then mapped out and will be found close to 15° external to the fixing point. The difference in the position of blind spot No. 1 and blind spot No. 2 of the deviating eye is the accurate measure of the deviation. C. C. K.

Friedenwald, J. S. A new Astigmatic Chart. American Journal of Ophthalmology. Series 3. Vol. 7. No. 1. pp 8-16. (Ill.), 1924.

Friedenwald describes a set of two astigmatic test charts which he devised. These charts contain several novel features. The charts themselves are modeled after the general plans of the Lancaster and Verhoeffs charts. However, according to the designer, the ideal chart is one in which the lines, sharply in focus, stand out clearly from the background, while the lines less sharply in focus, merge into the background.

With this in mind, Lancaster made up two charts with narrow black lines with white borders, placed on a background of gray, the equivalent to a mixture of the black and white.

When using these charts upon a patient whose visual acuity is good and who has but a slight degree of astigmatic error, the lines in focus stand out clearly while those out of focus, seem to disappear, merely blending into the gray background. C. C. K.

Meyer, B., Illumination for Visual Conservation. The Optical Journal and Review. Vol. L. I., No. 16, pp. 53-55, 1923.

In a paper, in which he strongly condemns exposed illuminents of high intrinsic brilliancy, and urges optometrists to put more thought on the important matter of proper illumination. Meyer describes some of the symptoms complained of by patients suffering from retinal fatigue due to improper illumination. These symptons usually consist of, a sandy, scratchy feeling in the conjunctiva; dry, hot, burning, itching sensations; increased frequency of winking; lacrimation; difficulty in keeping the eyes open; tired, aching feelings in the eyes and in the orbits and extending to other parts of the head; blurred and indistinct vision improved by rubbing the eyes and resting a short time, but quickly returning.

C. C. K.

Swain, Wm. Ophthalmo - Optical Etymology. The Optician and Scientific Instrument Maker. (Brit.) Vol. LXVII., No. 1730. pp. 219-220. 1924.

Dr. Swain, in an effort to refresh our memories on matters of etymology brings out several lists of Greek roots, two of which are given below.

Usually prefixes and suffixes are readily obtained from an English grammar so that we will leave these alone and consider some of the more usual Greek roots which enter the optometrist's vocabulary. These are split up again into those which are generally used at the beginning of a word and those used as endings.

Firstly:

Ambly-(Dull)
Asthen- (weak)
Blenno- (mucus)
Blepharo- (eyelid)
Cardia- (heart)
Cilia- (hair like)
Clonic- (violent)
Glossa- (tongue)
Helio- (sun)
Kera- (cornea, horny)
Myo- (muscle)
Myel- (spinal)
Neuro- (nerve)
Oste- (bone)
Sclera-(Sclerotic, hard)
Scoto- (dark)

Secondly:

-aemia (blood)
-algia (pain)
-derm (skin)
-echia (adhere)
-gen(eo)us (kind)
-gon (angled)
-graph (write)
-gram (written)
-gnosis (inquiry)
-ilemma (covering)
-itis (inflamation)
-meter (measure)
-opia (eye)
-osis (disease)
-ology (study of).

C. C. K.

Pottle, F. W., Diagnosis of Eyestrain Caused by Dental Irritations. Optical Age. Vol 20., No. 11., pp. 23-26. 1924.

According to Pottle, reoccurring asthenopic symptoms after all optometric aid has been given, may sometimes be attributed to dental infections.

Reflex asthenopic manifestations in the eye, caused by bad teeth, are probably more frequent than we have been led to believe. This important consideration in the ocular examination of patients suffering from asthenopia of obscure causation has probably been underestimated, due to the fact that in asthenopia, due to dental irritations, our visual inspection of the patient's teeth gives little or no real information, due to the following reasons.

There are usually no subjective dental symptoms. Neither pressure, heat nor cold, causes any pain. There may be no dental cavities. Frequently there is much bridgework, apparently in good condition. There is no odor from the mouth and the gums present a healthy appearance.

The diagnosis of dental infection as the cause of ocular asthenopia can only be made by exclusion, so there remains but one procedure on which you can make a definite diagnosis, namely a thorough Roentgen-ray examination.

In cases where the optometrist suspects pathology of this sort, the case should be sent to a dentist who would co-operate with us in determining if a pathologic condition exists. That some of the most aggravating asthenopic symptoms are caused by diseased teeth, and that when this condition is corrected the patient enjoys ocular comfort, has been proved time and again, and we should be ever alert to watch for this condition.

C. C. K.

BOOK NOTICES

HELMHOLTZ'S TREATISE ON PHYSIOLOGICAL OPTICS

Translated from the Third German Edition. Edited by **James P. C. Southall, Professor of Physics** in Columbia University. Volume 1. Pp482. Illus. 146. Optical Society of America, 1924 .

At the 1921 meeting of the Optical Society of America at Rochester, N. Y., it was proposed, in commemoration of the celebration of the hundredth anniversary of the birth of Helmholtz, to bring out an English translation of Physiological Optics, a classic evolved from the philosophic mind of a master. The first volume is now off the press and in typography and binding shows credit is due to the publishers and the printers. It is expected that the other two volumes will be published within the year completing a set of three volumes of a work of interest and of value, and one which should be in every ophthalmic library.

The first German edition appeared in the years 1856-1866 and the second edition was published in 1885. The third German edition is a posthumous edition as the German publishers, realizing the demand for a work of this kind, called on Prof. Dr. W. Nagel to revise and prepare a new edition, which appeared in 1910. In this work Nagel was assisted by Prof. Dr. A. Gullstrand and Prof. Dr. J. Von Kries. This edition appeared in three volumes, the third appearing before the second, with sections, parts of chapters and footnotes to indicate investigations into optics more recent than those of Helmholtz's. In preparing the third edition it was decided to take the first edition instead of the second on account of the more originality of the work. It was the third German edition that the translators chose, not because it was the latest, but because of its close following of the original work.

Prof. Southall has added explanatory footnotes and references to literature of recent origin which are all carefully designated. The first volume devotes 54 pages to an anatomical description of the eye and a section on the subdivisions of physiological optics. Part 1, "The Dioptrics of the Eye," embracing a rounded account of the eye as an optical system, covers 203 pages. The subdivisions being: Optical Imagery in a System of Spherical Refracting Surfaces; Optical System of the Eye; Blur Circles on the Retina; Mechanism of accommodation: chromatic abberation in the eye. Monochromatic abberations (Astigmatism); Entoptical Phenomena: Illumination of the Eye and the Ophthalmoscope. The remaining 221 pages are devoted to appendices by A. Gullstrand, the subjects being: Optical Imagery; Procedure of the Rays in the Eye; Refraction of the Eye; Mechanism of Accommodation; The Monochromatic Aberrations of the Eye; Ophthalmoscopy.

Many may think the first volume burdensome to read on account of the numerous lapses into mathematical references but the subject matter between the equations is easy reading and does not require knowledge of higher mathematics to understand.

The three volumes will cover the field of physiological optics from which one may obtain a broader knowledge of a subject of intense interest and value. One may not be in agreement with various points in Helmholtz's explanations of the subject, but understanding of what he taught will aid in advancing the standards and cause greater developments to be made in ophthalmic practice. E. O . F.

OPHTHALMOSCOPIC DIAGNOSIS. By George W. Jean, A.B., M.D. Instructor in Ophthalmoscopy and External Diseases of the Eye, in the School of Ophthalmology of the New York Eye and Ear Infirmary, etc., etc., 124 pages. 69 Illustrations. E. B. Meyrowitz Co. Publishers. 1915.

Jean in this text on the use of the Ophthalmoscope, first describes in detail the proper method of making an External Ocular Inspection, and later describes the methods of using this diagnostic instrument. Jean describes three methods. The Indirect, the Direct and the Direct-Indirect method, the later being a modified form of the Direct method, having several advantages over either of the first mentioned. These advantages are, First, It affords the best view of the fundus in cases of retinal detachment, Second, Vitreous Opacities are best seen by this method and Third, cases of High degrees of refractive error are best handled by this Direct-Indirect system. Each method is carefully described in outline form thus making this book a splendid text for the beginner. The book is fully illustrated, various forms of retinal pathology being described.

C. C. K.

OPHTHALMO - OPTICAL MANUAL. By Wm. Swain, B. Sc. 150 pages. 22 Illustrations and Diagrams. The Hatton Press. 1924

This manual is introductory to the daily practice and the studies of the optometrist of today. It is elementary and non-mathematical, but it should meet many of the requirements of more advanced workers also, by virtue of the collection of over 20 pages of tables which will be of great value to optometrists. These obviate the need for making calculations from formulae in connection with many of the problems which present themselves to the refractionist.

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JACK I. KURTZ, Room 209, Yeates Building, Minneapolis, Minnesota.

CUT-PRICE COMPETITION

Many methods have been tried to convince our erring brother optometrist of the "cut-price and ready-made glasses establishment" that he is on the wrong track. Whether or not he is a member of our societies, he regards a code of ethics as a huge joke.

Perhaps we are also on the wrong track in our efforts to win him over to our side. We must not overlook the fact that the reason for the existence of this cut-price competition is an economic one. **As long as there is a demand from the Laity for a cheaper brand of professional service there will always be someone in readiness to sell that service.** The people who patronize the cut-price optometrist believe that "fitting glasses" is a very simple accomplishment so they shop around and "buy" where glasses are "sold" the cheapest. If these people could be made to understand that the correction of eyesight is a very difficult task and that it should be intrusted only to the highly skilled, our misguided brother optometrist wouldn't be able to sell anything but "dolly glasses." An enlightened public would not look for skilled optometric service behind an "Eyes Examined Free" sign.

It seems then that our best weapon in this fight against unprofessional competition is education. We must inform the public by collective advertising, nation-wide if possible, of the seriousness of eyesight correction. Much can be done locally as well in this direction. Clinics conducted in a professional manner would be another boost for the ethical optometrist. Almost any form of publicity, particularly an advertising campaign, would be costly; but our money will not be spent in vain if we succeed in taking eyesight correction off the bargain counter.

A. S. A.

TAKING STOCK OF OURSELVES

We get a great deal of the jocular and less serious side of life constantly, so that occasionally it behooves us to consider for a time what all this struggling and striving to attain a goal is for; what is the use, so to speak.

The big work of man is neither masonry, manufacturing nor merchandising. It is life itself. Incidentally, there are bricks to be laid, wood to be shaped, and goods to be

sold; but these are only jots and tittles in the scheme of individual existence. The main thing is life itself. Life well wrought is a fabric which commands the gaze of all discerning eyes, the responsiveness of all neighboring hearts. Life bungled is a producer of ceaseless shame.

The efficient man is the man who thinks for himself, and is capable of thinking hard and long. No power on earth can keep a first class man down, or the fourth class man up. It is not, however, because you are different that you have especial strength of body, mind or soul. It is important to know if these "differences" are worth while, and it is the "What's the use?" test that must be applied to differences to determine their value. If you have an ideal in life and are sincere, you will eventually realize your greatest ambitions.

Every man must subject himself to two tests—the subjective test, which is a man's estimate of the value of himself, and the objective test, which is the value of his ability in the eyes of the world. The danger of the first test is that he will not be just with himself; of the second, that he will follow the crowd and not the principle of "Who says so." It is the old story of the power of mind; wherever matter dominates it destroys, but mind and soul in the long run survive, dominate and conserve.

The weakness of man lies in the fact that he sees crooked and he thinks as he sees. No man is safe whose greatest capacity is not strengthened by an all round development. He must have health and endurance which are body traits; he must maintain his interest, enthusiasm, persistence, willpower, love of work, faith and courage, which are traits of his soul; he must have thoroughness, promptness, common sense, memory, reliability, foresight, judgment, and system, which spring from the mind's realization of the world's way.

In every profession (business as well), to sum it all up the root of the evil is this, that we believe that mere dexterity and cunning are incomparably superior to knowledge, and that cleverness is infinitely more valuable than sound learning. You may put down in your note book that no man can serve his own best interests by betraying others. He may not know when he makes restitution, but he makes it.

Taking and not giving shortens the lives of the drones in every hive, and puts the eternal and everlasting "kibosh" on the best laid plans of the canniest of men; for nature demands her price, a compensation for everything; and it is the veriest truism to say that she will be paid.

Let us resolve for a concerted action on the part of all men interested in any way in the care of the human eye and eyesight, to see to it that, through every channel possible, a more competent and better trained practitioner is made available to the public, in order that the public may be honestly served.

A. R. B.

THE OBJECT OF A STATE SOCIETY

In a letter to the editor, a writer pertinently inquires—"why have State Societies?—and inasmuch as we have them, what are their objects?

Writing briefly for the several state societies represented by the **Northwest Journal of Optometry,** we would enumerate a few of the several objects of these societies, as follows:

To promote the education of optometrists in the science of optics and the practice of optometry, especially as applied to the corrections of errors of refraction of the human eye.

To provide for the delivery and holding of lectures, exhibitions, public meetings, classes and conferences, calculated directly or indirectly to advance the cause of optometric education, whether general or technical.

To support and protect the character, status and interest of the optometric profession, and to promote honourable practice.

To watch over and take all necessary action in relation to questions affecting the interests of the optometric profession and the members of the several societies.

To commence, prosecute, or defend any legal proceedings for the protection or assistance of the members of the profession.

These objects merit the attention of all optometrists, and because of them, the societies deserve the united support of every member of the profession.

C .C. K.

SPECIAL REPORT

MINNESOTA MAN HEADS THE DEPARTMENT OF PUBLIC INFORMATION

Successful Minneapolis Publicity Program Determines the Choice of A. C. Hoffman

Unanimous approval and adoption of the plan for the operation of the Department of Public Information as suggested by A. C. Hoffman, was the outcome of a special meeting of the Board of Trustees of the American Optometric Association held at Dayton, Ohio, September 10.

Minneapolis Optometrists have been highly complimented, since the selection of Dr. Hoffman is very largely the result of the successful Educational Publicity campaign promulgated and fostered under the leadership of the chairman, Dr. A. H. Nordland and his efficient committee. During the past two years this publicity campaign has earned the admiration of many leading optometrists for its high purpose and altruistic expression of ideals. More than ten thousand dollars have been spent in Minneapolis to educate the public on "Periodic Eye Care" and a proper respect for the profession of Optometry—a profession that is constantly raising its ethical and educational standards.

One of the first educators to signify his approval of the Minneapolis Educational plan was Dr. Augustine who has acclaimed it from coast to coast. Also Dr. Charles Sheard well known nationally and internationally has stated repeatedly that this campaign was the most altruistic local educational program that he as ever seen.

That this campaign has earned wide spread interest throughout the United States and in England is attested to by the inquiries that have been received. From New York City, Portland, Texas, and London and many other centers have come requests for samples of the publicity appearing in the Minneapolis papers.

A member of the local publicity committee, and associate member of the Department of Public Information during George Erskine's administration, Dr. Hoffman brings to this work a wealth of knowledge and experience in the field of Optometric publicity. Last winter he was invited to speak before the Optometric associations of Kansas City and St. Louis, and explain the Minneapolis plan and submit samples of educational publicity. Dr. Hoffman brought to the Kansas City convention copies of the publicity as it had appeared, mounted on large cards; a whole booth was devoted to displaying the copy, which earned for the display unusual attention.

Extraordinary interest was manifested by the press in various cities, while the national optometric magazines gave not a little space to commenting favorably on the Minneapolis Plan .

Dr. Hoffman has evolved a program for cities and communities interested in Educational programs to avail themselves of the years of experience behind the Minneapolis Plan.

It comprises a uniform copy program for all cities using collective or association publicity and a successful financial system for dividing the expense and collecting the money needed.

Cities, using the Minneapolis Plan, will be furnished with a competent expert from the A. O. A. headquarters the cost of whom will be borne largely by the medium (of the press) in which the campaign is to be run.

Exquisitely framed window cards with a monthly service have already been designed. However, Dr. Hoffman insists that his department does not intend to compete with already existing concerns manufacturing Optometric publicity. He hopes to have the A. O. A. Educational matter on an entirely different plane.

Health columns for publication in the newspapers includes a service, under preparation, on the Conservation of Vision and Eye Hygiene. This service will be furnished to local societies. Proper use of paid space upon the part of the local organization acts as an incentive to any newspaper to cooperate in the way of feature stories and health talks which may be secured from the Department of Public Information.

Radio talks, are being prepared for the use of Optometrists who have made arrangements with their local broadcasting stations to include in their program Eye Talks to Children.

Direct by mail publicity, pamphlets, booklets, and propaganda for school children will be available at an early date.

Co-operation with National and local health agencies with the hope of increasing the prestige of Optometry and performing an educational service is being fostered.

A complete outline of the Department's Plan follows:

I. Radio Broadcasting.

a. Bulletin outlining plan to secure hearing and complete arrangements with broadcasting stations.
   1. The bulletin would include information on length of speech.
   2. Request for opportunity for broadcasting.
   3. Quality of voice and diction required for speakers.
   4. Publicity to augment audiences of listeners.

b. Material to be broadcast.

1. These talks could be secured
   (1) from Optometrists already using radio material.
   (2) by a contest among the Optometrists for the best ten minute talk on Eyesight Conservation.
   (3) from a series of talks prepared by the Department of Public Information.

c. Plan for the formation of Health Clubs among children with weekly meetings over the radio.

d. Special letter-heads to be used by the local societies in communicating with officials of broadcasting stations and the Health Clubs.

e. National Optometric speakers to conventions should be booked for places on radio programs.

Comment: This plan for the formation of radio health clubs is in use by the Dentists in many cities and offers a strong appeal to very young children. General health talks are interspersed with presentations by the children themselves.

II. Direct by Mail Publicity.

a. Booklets now used.
b. New booklets.
1. Including playlets, classical literature arranged for use in clubs and schools. Also Eye-Sight saving talks and bulletins to be distributed by Health agencies and in the schools.
c. Letters from the Optometrist.
1. To his patients for re-examination.
2. To teachers for child observation.
3. To prospects he may meet.
4. To parents for their children.

III. Store and Office Publicity.

a. Booklets.
1. Distribution of which should be augmented in office of Optometrists.
   (1) test card now in use.
   (2) new test card for Phoroptometer.

IV. Window Displays for Optometrists.

a. High grade, uniform and in a series.
b. Ethical.
c. Inexpensive.

V. Conservation of Vision Week.

a. Bulletin outlining plan of co-operation with Health Organizations, Clubs, Churches, Schools, local officials, including the Governor, Mayor and other officials.
b. The provision of prizes for best cared for eyes and most perfect vision.
c. Publicity in connection with the Conservtion of Vision Week.
1. Newspapers can be induced to give prizes to persons having best vision and for essays on the Conservatior of Sight.
2. Mass meetings with public speakers from local societies who have been provided with material for talks and trained by the National Field Worker from this depar'ment.
3. National speaker to lecture on the Conservation of Vision at largest meeting. To lend dignity and prestige.
4. Healthland exhibits featuring the importance of eye hygiene.
5. Co-operation with free clinics operated during that week.
6. Window displays.
   (1) featuring proper equipment.
   (2) demonstrating an eye examination.

VI Co-operation With Existing National Health Agencies.

a. National Dairy Council.
1. Cards on ocular hygiene to be distributed to children in connection with Dental and Physical Hygiene cards now in use in schools.
2. Incorporation of ocular talks in the speeches of Harry Dairy, the Dairy Council clown and chalk talk man.
3. Inclusion of Optometric propaganda in Health circuses staged by children in all cities of the United States.
4. Co-operation with story tellers' league conducted by public libraries among Boy Scouts, Girl Scouts, school children, on playgrounds and in factories.

VII. Educational Bulletins.

a. Samples of A. O. A. literature and educational bulletins should be mailed frequently to all members.
b. A list of these bulletins should be carried in all the Optical Magazines.

VIII. Publicity Before and During.

a. Operation of Optometric clinics.
1. This is the most unusual field for publicity. Material in this field should be extensive. Intensive study will be required to do it full justice.

IX. State and Regional Conventions Should Be Attended.

a. By a speaker from the Department of Public Information.
1. Such speaker would lend prestige and dignity to any convention.
2. Train local speakers.
3. Exhibit booklets and other A. O. A. propaganda.
4. Make arrangements for co-operative publicity.

X. Mediums for Local Publicity.

a. Newspapers.
1. Display copy by local societies of an educational character. Cost to be borne collectively by Optometrists of the community.
2. Material for this copy should be furnished by the A. O. A. and should be of good quality running simultaneously in all cities using it.
3. Cost of producing this copy will be nominal and should be borne by society using it.
4. Field worker can be furnished from the A. O. A. headquarters to local societies interested so as to insure uniformity of plan and assure its success.
   (1) Cost where success is accomplished will be borne by newspaper in community where campaign is being run.
   (2) Field worker to be supervised by the Department of Public Information and responsible to this department.

5. Booklet outlining plan in detail should be furnished to societies in advance of the visit of the field worker.
   Comment: The plan as above stated is now used in Minneapolis. It has increased the membership in the local society 90 per cent. This educational program has necessitated the expenditure of over $ 0,000 and has raised the standard of ethical practice, helping to eliminate cut-rate and unethical practitioners. Inquiries have been received from nearly every civilized country and indicate that many cities are now ready to proceed with this plan.

b. Reader publicity to local papers.
   1. Copy or mats to be furnished local societies or individual Optometrists upon request at a nominal expense.
      (1) Reader copy of scientific accomplishments or features of unusual occurrences in the field of Optometry.
      (2) Copy for eye-sight conservation columns where local society or individual Optometrists can arrange for same.
   2. Arrangements will be made to get the Associated Press to wire its correspondents any unusual occurrences concerning Optometry or well known Optometrists.
   3. Features on eye-sight conservation for Sunday sections will be secured if properly planned.

XI. Co-operation Among School Children.

a. Contests among school children.
   1. Prizes to be given with the co-operation of local newspapers for essays upon
      (1) "What is Optometry."
      (2) "How I Can preserve my eyesight."
      (3) "Why Optometry would make a good profession."
      (4) Other titles could be suggested.

XII. A Bulletin on Speeches to Clubs

a. Plan to secure hearing before
   1. Parents' and teachers' associations.
   2. Women's clubs.
   3. Men's lunch clubs.
   4. Schools
   5. Civic and public welfare associations.

b. Material for the speech.
c. Training for the speaker.
d. Lantern slides for the above speeches.
e. Motion picture for speaker.
   1. Which we have.

f. Optometric speakers to be provided from this department at the request of city associations.

XIII. Adoption of a National Emblem.

a. One hundred dollar prize to be offered commercial artists in competition for the emblem most artistic in design and most representative of the A. O. A. ideals.

b. Emblem should be characteristic of the ideals of the Association.

c. National emblem should be used when addressing help agencies, school boards, newspapers, and other organizations.

d. The emblem should be used in publicity.
   1. On cards certifying the visual acuity of motorists.
   2. Should be used on billboards identifying the conservation of vision message.
   3. Emblem should be in use wherever it would increase prestige of the National Association.

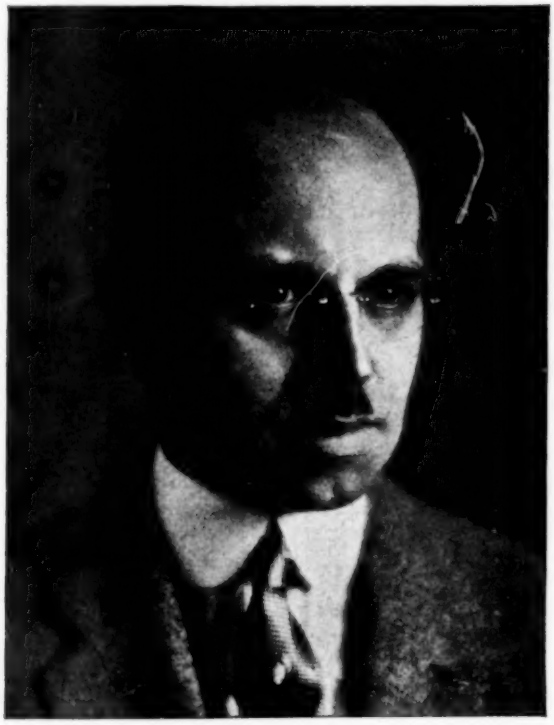
REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA ASSOCIATION TO HOLD SEMI-ANNUAL CONVENTION

The Minnesota State Association will hold the third semi-annual convention on Monday, October 6th, at the new Nicollet Hotel, Minneapolis.

The Minneapolis Association of Optometrists has been appointed by President Kubicek as the general convention committee. Drs. J. I. Kurtz, C. C. Koch and A. N. Nordland have been appointed as arrangement committee. The reports have it that this convention is going to be a treat, and not only many Minnesota optometrists will attend this great educational feast, but many optometrists from the neighboring states are expected to attend.

The arrangement committee was successful in securing Dr. F. A. Barr to deliver a series of lectures at the convention. Dr. Barr is one of the leading educators and lecturers in the profession of optometry. He has thrice been president of the Ohio State Optometric Association. He inaugurated the famous Ohio Educational Program and was made its first director. Dr. Barr was very instrumental in helping establish the four-year optometry course at the Ohio State University, which was the first course of that kind in America. He served at this institution as the first lecturer on practical and applied optometry under the leadership of Professor Chas. Sheard.



DR. F. P. BARR

Dr. Barr is now on the scientific staff of the Bausch and Lomb Optical

Company and has been lecturing in many cities of the country before optometric associations on scientific optometric subjects. At this convention Dr. Barr will lecture in the morning on "Building a Modern Optometric Practice." In the afternoon he will lecture on "Physiology of Vision," and in the evening on "Color Vision."

Other lecturers at the convention will be Dr. Geo. McIntire, M. D., a well known Minneapolis Ophthalmologist. Dr. McIntire will lecture on "Pathology of the Eye." Dr. A. C. Hoffman, chairman of the A. O. A. Department of Publicity and Public Information will outline the publicity plan for 1924.

A banquet and entertainment has been arranged for the evening. At the time this Journal goes to press Dr. J. I. Kurtz, secretary of the State Association, reports that a large number of reservations have been received at his office not only from optometrists of different parts of Minnesota, but from neighboring states as well. Reservations for the banquet should be made before the day of the convention.

PROGRAM

Third Semi-Annual Convention Minnesota State Association of Optometrists.

MONDAY, OCTOBER 6, 1924.

9:00 A. M. Registration. Payment of Dues, Banquet Tickets.

10:00 A. M. Address by President. Dr. J. L. Kubicek, Waseca.

10:30 A. M. Dr. F. P. Barr, Rochester, N. Y.
Lecture, "Modern Optometry."

1:00 P. M. Dr. Geo. McIntire, Ophthalomologist, Minneapolis.
Lecture, "Pathology of the Eye."

2:00 P. M. Dr. F. P. Barr.
Lecture, "Physiology of Vision."

3:30 P. M. Dr. A. C. Hoffman, Chairman.
A. O. A. Department of Public Information.
"Outline of Publicity Plan for 1924."

4:00 P. M. Business Session, Dr. J. L. Kubicek Presiding.
Legislative Committee Report.
Convention Delegates' Reports.

6:30 P. M. Banquet, Nicollet Hotel.

8:00 P. M. Dr. F. P. Barr.
Lecture, "Color Vision."

NEBRASKA NEWS REPORT

The Executive Committee of the Nebraska Optometric Association was again called into session Sunday, August 31st, at Columbus. President Perrigo, Secretary Garland and Chairman of Clinic Committee Blaine, together with Skeffington of Kearney, presented themselves for dinner and a confab later.

The entire program for the year was outlined, so that a definite objective might lie before the organization. It was decided to go earnestly after paid up members for this year so that the Clinic program might be carried out with the aid of the Kiekenapp plan.

The School penetration plan was amplified, the Certificates having been sent every member and many returned. The Secretary is writing the School Superintendents, and is sending them these cards and plans to follow these up with further letters if the men report that no attention is paid to them.

The matter of Clinics came up for very full discussion. Two towns have applied for Clinics and they will get them. The Zoning of the State was practically completed and the Chairmen of the new Zones will be announced as soon as possible. The Executive Committee is anxious to get men who will co-operate heartily for the good of the Profession.

Every encouragement to build up study clubs will be made the zones, in the hopes of building up local organizations that will function to the benefit of Optometry. It is suggested that the Educational series of the National can be used and that meeting take up these courses one by one.

It was decided to write the legislators four letters, going deeply into the aims of Optometry, so that when we do go before the Legislature for a new law, they will know something about us. Other plans are "in the fire" to help the men of the State. The Executive Board wants to make the Nebraska Association a real service organization, to the men of the State, and so hopes to greatly increase the membership.

Some misunderstanding has arisen concerning the resolution adopted at Kansas City concerning advertising. Advertising is not forbidden but "personal exploitation" is, in the objectionable sense of permitting any Optometrist to publicly claim that he is the only man capable of examining eyes in the community, etc. An Optometrist with the good of the Profession at heart, will not object to the elimination of the blatant, quack methods that have been employed. No explanation need be made of the phrase that rejects price advertising. That is indefensible under any conditions.

If we are to have Clinics in Nebraska this year, the dues for this year must come in before the Clinics are held. Dues for last year, on the certificates dated 1924, will not apply, according to Secretary Kiekenapp. That ended June 30th, 1924. It does not matter to the member whether he pays this September or next May. But it means that if he pays now, we can have his money working for Optometry a whole year ahead, which is just what we need in Nebraska. When the Secretary appeals for your dues, pay us, so that we may forge ahead nearer to our goal of an Acknowledged Profession.

DR. MOLLY ARMSTRONG ADDRESSES MINNEAPOLIS SOCIETY

September 17th, 1924

At the first fall meeting of the Minneapolis Association of Optometrists, Dr. Molly Armstrong, president of the Texas Optometric Association, occupied the position as guest of honor, and in a splendid impromptu address, after the dinner outlined some of the worthy plans the Texas optometrists are carrying out.

Dr. L. L. DeMars, who presided at the meeting, also called upon Drs. Kiekenapp, Kurtz, Hoffman, Nordland and Koch, all of whom spoke briefly on various subjects. Dr. Kiekenapp outlined the present status of the A. O. A., Dr. Kurtz made the initial announcement of the coming mid-year convention, Dr. Hoffman spoke at some length on the plans he has prepared for his new Department of Public Information in our National Society, Dr. Nordland touched briefly on the Public Clinic to be established and Dr. Koch gave a report on the clinics at the Kansas City convention.

The meeting was well attended for one called on short notice and the society is looking forward to many splendid meetings during the year.

NEW ASSOCIATE EDITOR FROM NORTH DAKOTA

Dr. A. S. Anderson, optometrist of Fessenden, North Dakota, recently elected secretary of the North Dakota Optometric Association, takes up his new work as associate editor of the NORTHWEST JOURNAL OF OPTOMETRY with this issue of our magazine.

DR. A. S. ANDERSON

The editor and staff join in wishing our former associate editor, Dr. L. J. Anderson of Grand Forks, the best of success, and also in welcoming our friend from Fessenden, at the same time assuring him that we will do all in our power to assist him in his good work as secretary of the North Dakota Society.

SKEFFINGTON SPEAKS IN PENNSYLVANIA

Dr. A. M. Skeffington of Kearney, leaves September 19th for Harrisburg, Pennsylvania, where he will conduct a Post-Graduate Clinic for the Pennsylvania Association, for the three days of their annual meeting. It was hoped to have Dr. Tait of Philadelphia cooperating in this Clinic but Dr. Tait cannot get away. Dr. Skeffiington plans a side trip to New York and will possibly stop in Chicago on his return, to meet with the Chicago Society.

MINNESOTA STATE EXECUTIVE COMMITTEE MEETS

A meeting of the Minnesota State Executive Committee was held recently at the office of the Association secretary, Dr. J. I. Kurtz, Yeates Building, Minneapolis. The committee has gone on record to recommend the following resolution for passage at the next convention of our state society, which will change the system of selecting members to the State Board of Examiners so that for each vacancy to be filled eight candidates be nominated at the convention. The names of these candidates be submitted to the members to be balloted upon. The two candidates receiving the highest number of votes are to be recommended to the governor and that no person who served for two full terms on the board (that is 8 years) shall be eligible to have their names placed on the ballot.

The committee also decided to request the state board to take steps to revoke the license of all Optometrists who conduct an unprofessional and unethical practice.

At the suggestion of Dr. Kurtz the committee has gone on record to encourage the establishment of eye clinics at the Automobile show. Here to examine the eyes of automobile drivers and determine their fitness. Plans are being worked upon now for conducting an eye clinic at the coming Automobile show at Minneapolis.

MINNESOTA STATE BOARD NOTICE

This is to inform all men, that the fall examination of the Minnesota State Board of Optometry will take place in the Senate Chamber of the Old State Capitol Building, St. Paul, Minnesota, on the 27th, 28th and 29th of October, 1924.

E. H. KIEKENAPP, Secretary.

THE CURRENT LITERATURE DEPARTMENT

During the past several months this office has received prehaps a dozen or more requests for information regarding the optometric and ophthalmic magazines mentioned monthly in the **Current Literature Department** of the NORTHWEST JOURNAL OF OPTOMETRY. Original papers, appearing in the following eleven magazines, are mentioned, in this department, and the following list gives information relative to the magazines themselves which are received monthly for review. The abbreviation as used in the **Current Literature Department** is first given, followed by the full name of the publication.

(Editor's Note.)

Amer. Jour. of Oph. American Journal of Ophthalmology. Published Monthly. Edward Jackson, M. D., Editor. Annual Subscription, $10.00. Business office, 7 W. Madison St., Chicago, Ill.

Amer. Jour. of Phy. Opt. American Journal of Physiological Optics. Published Quarterly. Charles Sheard, Ph.D., F.A.A.O., Editor. Annual Subscription $2.00. Business office, care The American Optical Co., Southbridge, Mass.

The Can. Optom. The Canadian Optometrist. Published Monthly. Official Publication of the Optometrical Associations of Canada. W. G. Maybee, Opt.D., F.A.A.O., Editor. Annual Subscription, $3.00. Business office, care The Consolidated Press, Toronto, Canada.

The Conn. Optom. The Connecticut Optometrist. Published Monthly. Official Publication of the Connecticut Optometric Society. W. S. Todd, Opt.D., F.A.A.O., Editor. Subscription rates on application. Business office, care P. O. Box 1042, Hartford, Conn.

E. E. N. & T. Mo. Eye, Ear, Nose and Throat Monthly. Published Monthly. T. G. Atkinson, M.D., Editor. Annual Subscription, $3.00. Business office, care The Professional Press., 17 No. Wabash, Chicago, Ill.

N. W. Jour. of Optom. Northwest Journal of Optometry. Published Monthly. Official Publication of the Minnesota, North Dakota and Nebraska Optometric Societies. C. C. Koch, Opt.D., F.A.A.O., Editor. Annual Subscription, $3.00. Business office, 209 Yeates Bldg., Minneapolis, Minn.

Opt. Jour. and Rev. The Optical Journal and Review of Optometry. Published Weekly. F. A. McGill, Editor. Annual Subscription, $2.00. Business office, care The Optical Publishing Co., 11 John St., New York.

Optician. (Brit.) The Optician and Scientific Instrument Maker. Published Weekly. Official Publication of the Society of Chemist-Opticians, the West Riding Optical Society, the Manchester and North of England Optical Society, the Scottish Optical Association, the Northern Counties Optical Society, the Midland Optical Society, the National Association of Opticians, the Liverpool and District Optical Society, the Institute of Ophthalmic Opticians of New South Wales, and the New Zealand Optical Association. Chas. Hyatt-Woolf, F.R.P.S., F. R.S.L., Editor. Annual Subscription, 20s. Business office, 173 Fleet St., London, E.C.4., England.

Optom. Wky. The Optometric Weekly. Published Weekly. L. Topaz, Opt.D., Editor. Annual Subscription, $1.00. Business office, care The Professional Press, 17 N. Wabash, Chicago, Ill.

The Ref. (Brit.) The Refractionist. Published Monthly. Official Publication of the Institute of Ophthalmic Opticians. Mr. Cuff, Editor. Annual Subscription, 7s, 6d. Business office, care The Staple Inn Bldgs., Holborn, W.C.1., England.

West. Opt. World. The Western Optical World. Published Monthly. Annual Subscription, $2.00. Business office, 5107 Hollywood Ave., Los Angeles, Cal.

CURRENT LITERATURE

These are the titles of papers bearing on optometry. They are grouped under appropriate heads, and in each group arranged alphabetically, usually by the Authors name in **heavy face type.** The abbreviations mean: (Ill.), illustrated; (Pl.), plates; (Abst.), indicates that it is an abstract of the original article; and (Dis.), that discussion is published with paper.

GENERAL REFRACTION

Bagwell, W. Antimetropia and the Idle Eye. Opt. Jour. and Rev. Vol. LIV, No. 4, pp. 23-24.

Bulson, A. E. Cycloplegics in Refraction Work. (Abst.) Amer. Jour. of Oph. Series 3, Vol. 7, No. 7, pp. 561-562.

Byrd, H. Meckles Ganglion and Accommodation, E. E. N. & T. Mo., Vol. 3, No. 4, p. 225.

Canitano, S. Base Line and Interpupillary Distance in Correction Refractive Errors. (Abst.) Amer. Jour. of Oph. Series 3, Vol. 7, No. 7, p. 562.

Clapp, C. A. The Accuracy of Skiascopy as Based upon a Study of Fifteen Thousand Cases. Amer. Jour. of Oph. Series 3, Vol. 7, No. 7, pp. 523-526.

Coque, M. Perimetry in Ophthalmic Practice. The Optician. (Brit.) Vol. LXVII, No. 1740, pp. 396-410.

De Mars, L. L. Astigmatic-Anisometropia. N. W. Jour. of Optom. Vol. 1, No. 8, p. 159.

Decker, J. C. Cycloplegics in Refraction, Permanent Loss of Accommodation Following the Use of Homatropin. Amer. Jour. of Oph. Series 3, Vol. 7, No. 6, pp. 443-445.

Hardy, W. E. Near Point Tests. The Optician. (Brit.) Vol. LXVII, No. 1739, pp. 385-389.

Howard, A. B. Question as to the Correctness of Accommodative Rules. Opt. Jour. and Rev., Vol. LIV, No. 7, pp. 27-32.

Lyon, W. B. A Six Foot Working Distance in Static Retinoscopy. N. W. Jour. of Optom., Vol 1, No. 8, p. 159.

Mayer, E. Vertex Lenses in Near Point Work. The Optician. (Brit.). Vol. LXVII, p. 284.

Myers, L. W. Campimetry. N. W. Jour. of Optometry. Vol. 1, No. 8, p. 157.

Oppenheimer, E. H. Astigmatism in High Myopia and a New Way of Testing It. Amer. Jour. of Oph. Series 3, Vol. 7, No. 7, p. 530.

Parker, J. W. Reversing the Subjective Test. Opt. Jour. and Rev. Vol. LIV, No. 5, pp. 27-28.

Perrigo, C. A. Visual Acuity on a Percentage Basis. (Ill.). Vol. 1, No. 9, pp. 178-180.

Petry, E. The Difference of the Effectiveness of Distance Lenses When Applied to Near Work. Opt. Jour. and Rev. Vol. LIV, No. 1, pp. 25-26.

Poser, M. Perimetry and Campimetry. The Conn. Optom. Vol. 1, No. 4, pp. 7-13.

Rees, H. C. The Cross Cylinder Test for Astigmatism (Ill.). Opt. Jour. and Rev. Vol. LIV, No. 6, pp. 33-34.

Richards, W. M. and Penel, R. Treatment of Overuse of Eyes by Exact Correction of Ametropia. Amer. Jour. of Oph. Series 3, Vol. 7, No. 7, p. 562.

Scherer, C. M. Scherer's Cataract Spectacles. The Optom. Wky. Vol. XV, No. 23, pp. 1063-1065.

Skeffington, A. M. Perimetry in Optometry. The Optom. Wky. Vol. XV, No. 16, pp. 721-723.

Wirgman, C. W. Vision and Target Shooting. (Abst.). The Optician (Brit.). Vol. LXVII, No. 1739, pp. 390-391.

A New Test Chart. (Editorial) N. W. Jour. of Optom. Vol. 1, No. 8, p. 161.

OCULAR NEUROLOGY

Morris, C. W. The Autonomic Nervous System. Opt. Jour. and Rev. Vol. LIV, No. 5, pp. 29-31.

COLOR VISION

Edridge-Green, F. W. Temporary Color Blindness (Abst.). E. E. N. & T. Mo. Vol. 3, No. 4, p. 230.

OCULAR MUSCLES

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Hyslop, Spasmodic Diplopia (Abst.). E. E. N. & T. Mo. Vol. 3, No. 4, pp. 228-229.

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Johnson, E. E. Eveleth Public School Visual Survey (Ill.). N. W. Jour. of Optom. Vol. 1, No. 9, pp. 174-175.

King, F. Industrial Efficiency and Eyesight. The Optician (Brit.). Vol. LXVII, No. 1734, pp. 310-312.

Murray, G. A. Refracted Light. A Vital Factor in the Development of Wage Earning Capacity. Opt. Jour. and Rev. Vol. LIV, No. 2, pp. 33-34.

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Snell, A. C. Ocular Injuries and Legal Compensation (Abst.). Opt Jour. and Rev. Vol. LIV, No. 3, pp. 37-40.

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Skeffington, A. M. The Optometric Clinic as an Opportunity. N. W. Jour. of Optom. Vol. 1, No. 9, pp. 180-183.

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Bau, H. K. The Effect of Ultraviolet Rays Upon the Eye. The Optom. Wky. Vol. XV, No. 14, p. 606.

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Whitwell, A. Steroscopy and Optical Illusions. The Opticians (Ill.) (Brit.). Vol. LXVII, No. 1735, pp. 321-322.

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